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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,039	09/14/2006	Takayuki Kuwashima	KAWAGUCHI.006AUS	9347

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EXAMINER	
ORTIZ RODRIGUEZ, CARLOS R	
ART UNIT	PAPER NUMBER
2123	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/586,039	KUWASHIMA ET AL.	
	Examiner	Art Unit	
	CARLOS ORTIZ RODRIGUEZ	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/14/06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☒ Claim(s) *3-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/14/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-13 are pending.

Priority

2. Applicant is required to submit a reference to the prior applications in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Allowable Subject Matter

2. Claim 3 and consequently dependent claims 4-6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and the rejection under 35 U.S.C. 101 set forth in this Office action.

3. Claim 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and the rejection under 35 U.S.C. 101 set forth in this Office action.

4. Claim 8 and consequently dependent claim 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and the rejection under 35 U.S.C. 101 set forth in this Office action.

5. Claims 9-11 and consequently dependent claims 12 and 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and the rejection under 35 U.S.C. 101 set forth in this Office action.

6. The following is a statement of reasons for the indication of allowable subject matter:

While Arikan et al., "Process Modeling, Simulation, and Paint Thickness Measurement for Robotic Spray Painting, Journal of Robotic Systems, Pages 479-494, 2000 discloses, and Nakajima et al. (U.S. Patent No. 6,918,539) discloses simulating paint thickness distribution and Ushio et al. (U.S. Patent No. 4,882,215) discloses calculating a desired weight by multiplying an amount of coating material by a specific gravity of coating.

None of these references taken either alone or in combination with the prior art of record disclose a "non-adhered paint"/ "solvent" calculation method, including:

(Claim 3) "a non-adhered paint calculation process comprised of the following procedures (1) and (2): (1) said coating thickness distribution value obtained from said coating thickness simulation, a paint area of the object to be painted, and specific gravity of dried paint are multiplied together to determine dry weight of the adhered

paint, and weight of sprayed paint is multiplied by a proportion of solidified paint to determine dry weight of the sprayed paint, and (2) said dry weight of the adhered paint is subtracted from said dry weight of the sprayed paint to determine said dry weight of the non-adhered paint",

(Claim 7) "that said non- adhered paint calculation process is conducted based on the coating thickness simulation results at a time when a paint- adhering efficiency, which is an efficiency of the paint adhering to the object to be painted, becomes relatively high by repeatedly executing said coating thickness simulation while changing input conditions",

(Claim 8) "determining an amount of adhered paint, which is the paint adhered to the object to be painted, based on the coating thickness distribution value obtained from the coating thickness simulation and a paint area of the object to be painted; and calculating weight of adhered solvent, which is the weight of the solvent adhered to the object to be painted, based on the amount of the adhered paint",

(Claim 9) "a solvent weight calculation process comprised of the following procedures (1)-(4): (1) said coating thickness distribution value obtained from said coating thickness simulation is multiplied by a paint area of the object to be painted to determine an amount of dried adhered paint, which is a bulking value of the dried paint adhered to the object to be painted, (2) said amount of dried adhered paint is multiplied by specific gravity of the dried paint to determine dry weight of the adhered paint, (3) said dry weight of the adhered paint is divided by a proportion of solidified paint to determine weight of the adhered paint, (4) said dry weight of the adhered paint is

subtracted from said weight of the adhered paint to determine said solvent weight of the adhered paint",

(Claim 10) "a solvent weight calculation process comprised of the following procedures (1)-(3): (1) said coating thickness distribution value obtained from said coating thickness simulation, a paint area of the object to be painted, and specific gravity of dried paint are multiplied together to determine dry weight of the adhered paint, (2) said dry weight of the adhered paint is divided by a proportion of solidified paint to determine weight of the adhered paint, (3) said dry weight of the adhered paint is subtracted from said weight of the adhered paint to determine said solvent weight of the adhered paint", and

(Claim 11) "a solvent weight calculation process comprised of the following procedures (1) and (2): (1) said coating thickness distribution value obtained from said coating thickness simulation, a paint area of the object to be painted, and specific gravity of dried paint are multiplied together, then divided by a proportion of solidified paint to determine weight of the adhered paint, (2) said weight of the adhered paint is multiplied by a proportion of non-solidified paint to determine said solvent weight of the adhered paint",

in combination with the remaining elements and features of the claimed invention. It is for these reasons that the applicant's invention defines over the prior art of record.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 3-7 and 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, please note that claims 3 and 9-11 are not in one sentence form. These claims either have more than one period and/or have more than one phrase commencing with capital letter. This creates confusion when determining which limitations are part of the claim.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 1-13 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Giving the claims their broadest reasonable interpretation consistent with the specification and consistent with the interpretation that those skilled in the art would reach, it is determined that the claimed method steps are not tied to a particular machine or apparatus or transform a particular article into a different state or thing. The claimed method does not require a particular machine or apparatus to perform the claimed steps. Please note that the manner in which the claims are written it appears to be that the coating thickness simulation is performed

before performing the claimed method steps. Therefore the claimed steps are not necessarily tied to the computer utilized to perform said simulation.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claim 1 is rejected under 35 U.S.C. 102 (b) as being anticipated by Arikan et al., "Process Modeling, Simulation, and Paint Thickness Measurement for Robotic Spray Painting, Journal of Robotic Systems, Pages 479-494, 2000 (hereinafter Arikan).

a. Please note that the term "presuming" and "based on the presumption" is being interpreted as "provided".

b. **Regarding claim 1**, Arikan discloses a non-adhered paint calculation method using a non-adhered paint calculation process, characterized in that: presuming that at least a coating thickness simulation is executed for calculating a coating thickness distribution value of paint coating thickness of each portion of an object to be painted (Page 493 and Figure 16 and Figure 17 - - see that a simulated paint thickness distribution is executed and the paint thickness

distribution is measured after the object is painted. Note that the distribution includes a plurality of portions of the surface of the object);

determining an amount of adhered paint, which is the paint adhered to the object to be painted, based on the coating thickness distribution value obtained from the coating thickness simulation and a paint area of the object to be painted;

considering an amount of sprayed paint which is the paint that has been discharged from a paint machine (Page 493 - - see that the model is developed and the simulation is performed in order to calibrate the equipment and paint the object accordingly. Note that the simulation is to determine the amount of paint that is going to be adhered to the object); and calculating an amount of non-adhered paint which is the paint that did not adhere to the object to be painted (This limitation is implicitly disclosed by Arikan in Page 486 Column 2 Lines 19-38 and Page 487 Column 1 Lines 1-4. Arikan implicitly discloses this limitation because Arikan indicates that after the paint is discharged from the nozzle of the spray gun some solid is lost due to overspray. Arikan also indicates that the overall deposition efficiency can be determined by making use of experimental data. This calculated efficiency indirectly includes the amount of paint that did not adhere to the objected).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arikan et al., "Process Modeling, Simulation, and Paint Thickness Measurement for Robotic Spray Painting, Journal of Robotic Systems, Pages 479-494, 2000 (hereinafter Arikan) in view of Ushio et al. U.S. Patent No. 4,882,215 (hereinafter Ushio).

a. **Regarding claim 2**, Arikan teaches all the limitations of the base claims as outlined above. Arikan further teaches dry non-adhered paint (Page 486 Column 2 Lines 35-38 - - see that during the drying process solid that cannot adhere to the surface leaves the surface).

But Arikan fails to clearly specify that dry weight of the non-adhered paint is calculated by multiplying the amount of non-adhered paint by specific gravity of the paint and a proportion of solidified paint, or multiplying weight of the non-adhered paint by the proportion of the solidified paint.

However, Ushio teaches calculating a desired weight by multiplying an amount of coating material by a specific gravity of coating (C9 L42-47 - - Please note that the specific gravity of coating includes a proportion of the coating material).

Arikan and Ushio are analogous art because they are from the same field of endeavor. They both relate to coating materials.

Therefore at time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the above teachings taught by Arikan and combining them with the teachings taught by Ushio.

One of ordinary skill in the art would have been motivated to do this modification in order to improve the paint thickness distribution prediction and reduce the difference between the simulated and measured thickness as suggested by Arikan (see section labeled “Discussion and Conclusion”).

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is 571-272-3766. The examiner can normally be reached on Mon-Fri 10:00 am- 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Carlos Ortiz-Rodriguez
Patent Examiner
Art Unit 2123

October 6, 2009

/Kidest Bahta/
Primary Examiner, Art Unit 2123